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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,188	06/30/2005	Tatsuro Uchida	03500.103081	4934

5514 7590 11/14/2006

FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

KIANNI, KAVEH C

ART UNIT PAPER NUMBER

2883

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/541,188

Applicant(s)

UCHIDA, TATSURO

Examiner

Kianni C. Kaveh

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 6-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-16, drawn to an optical element/waveguide device including non-absorbing substrate and a semiconductor layer where the optical device is formed.

Group II, claim(s) 12-15, drawn to a method of manufacturing an optical element device including forming a recess in substrate and forming a metal film in the recess.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: each of the above group inventions, as described above, has limitation(s) directed toward an invention that are in different subclasses and would require a different search than that of other group inventions.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Group IA, claim(s) 1-5, drawn to an optical element/waveguide device including non-absorbing substrate and a semiconductor layer where the optical device is formed

Group IB, claim(s) 6-11, drawn to an optical waveguide device including said optical path transforming structure is buried into said optical waveguide layer.

Group IC, claim(s) 16, drawn to an optoelectronic circuit board having electrical and optical connections.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

The claims are deemed to correspond to the species listed above in the following manner: Group IA, claim(s) 1-5, drawn to an optical element/waveguide device including non-absorbing substrate and a semiconductor layer where the optical device is formed; Group IB, claim(s) 6-11, drawn to an optical waveguide device including said optical path transforming structure is buried into said optical waveguide layer. Group IC, claim(s) 16, drawn to an optoelectronic circuit board having electrical and optical connections.

The following claim(s) are generic: None.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: The species are independent or distinct because each of the above group inventions, as described above, has limitation(s) that is directed toward an invention that would require a different search that that of other group inventions and because each of the above species defining an invention that is distinct that that of the other and requiring a different search.

During a telephone conversation with Mr. Glueck on 10/31/06 a provisional election was made with traverse to prosecute the invention of Group IA, claims 1-5. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 6-16 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC 112***

Claims 1 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

claim 1 is ambiguous, since 'some other element' is not clear as what that element is.

Claim 3 is indefinite and ambiguous as whether the substrate is made of semiconductor or it is a substrate of a layer of a semiconductor material. Appropriate corrections are required.

***Claim Rejections - 35 USC § 102***

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1 and 3-5 are rejected under 35 U.S.C. 102(a) as being anticipated by Ouchi (EP 1286194 A2).

Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi (EP 1286194 A2).

Ouchi teaches an optical element device (shown in at least fig. 2) comprising an optical element 5 and an optical path transforming structure for changing a light proceeding direction in order to couple light 16 with the optical element 2 or light from said optical element 5 with some other element, said optical path transforming

structure 3 being formed by processing a substrate 7 where said optical element 5 is formed (although the process and/or functional language of the above limitations are not given patentable weight since the claim is a structure claim rather than a method/process claim, nonetheless see the teachings in at least see parag. 0030).

Ouchi further teaches wherein said substrate is a growth substrate of a semiconductor layer for forming said optical element (see parag. 0071); wherein said growth substrate is formed by using a compound semiconductor (see 0071); wherein said optical element is a light emitting element or a light receiving element (see at least fig. 16, item 247).

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goosen et al. (US 5786925).

Regarding claims 1-5 Goosen teaches an optical element device (shown in at least fig.52) comprising an optical element 48 and an optical path reflecting structure for changing a light proceeding direction in order to couple light 36/38 with the optical element 48 or light from said optical element 48 with some other element, said optical path transforming structure being formed by processing a substrate 12 where said

optical element 48 is formed (although the process and/or functional language of the above limitations are not given patentable weight since the claim is a structure claim rather than a method/process claim, nonetheless see the teachings in at least fig. 1-5).

However, Goosen does not explicitly state that the above reflective structure is 'transforming' structure and that wherein said substrate is made of a material that does not absorb light being propagated from said optical element or to said optical element. Nevertheless, Goosen states that light may be absorptive or reflective depending on design choice/structure (see col. 5, line 49-col. 6, line 14). Thus, it is obvious/well-known to those of ordinary skill in the art when the invention was made that the reflective structure is a light path transforming structure and that would have been obvious to choose as matter of design structure as suggested by Goosen a non-absorptive substrate layer, since such device would provide formation of angled surfaces in a substrate which alter the path of optical signals (see field of the invention, col. 1, 2<sup>nd</sup> parag.)/

Goosen further teaches ; wherein said substrate is a growth substrate of a semiconductor layer for forming said optical element (see col. 5, 3<sup>rd</sup> parag.); wherein said growth substrate is formed by using a compound semiconductor (see col. 5 3<sup>rd</sup> parag.); wherein said optical element is a light emitting element or a light receiving element (see item 48).

#### ***Citation of Relevant Prior Art***

Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in

rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

EP 0603549 (no translation yet)

OUCHI 20030039455

OUCHI 6829398

Skinner et al. 20040120675

Baker et al. 20030099426

Koh et al. 20030113067

Glebov "20050201707" includes non-absorptive substrate/layer

US 20040120675 A1 Skinner, Michael et al.

US 20030099426 A1 Baker, Jay D. et al.

US 5999670 A Yoshimura; Ryoko et al.

US 5170448 A Ackley; Donald E. et al.

US 20020028045 A1 Yoshimura, Tetsuzo et al.

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kianni C. Kaveh whose telephone number is 571-272-2417. The examiner can normally be reached on 9:30-19:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



K. Cyrus Kianni  
Primary Patent Examiner  
Group Art Unit 2883

November 7, 2006

**KAVEH KIANNI**  
**PRIMARY EXAMINER**